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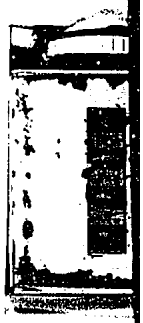

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PREVENTION OF RELAPSING FEVER ON NEW SOVIET CONSTRUCTION PROJECTS

[The following information on the prevention of relapsing fever on new Soviet construction projects, by F. G. Barinskiy, Candidate of Medical Sciences, appeared in Voprosy Epidemiologii i Parazitologii, Organizatsiya, Sanitarnykh i Protivoepidemicheskikh Meropriyatiy (Problems of Epidemiology and Parasitology. Organization of Sanitation and Epidemic Control), a publication of the Academy of Medical Sciences USSR, Moscow, 1952, A. N. Sysin, editor.]

One of the functions of the health services at new construction projects is the protection of workers from infectious diseases. Prevention of importation and spread of all types of parasite-transmitted typhus diseases, particularly relapsing fever, must be given special attention during the period of construction of the Main Turkmen Canal.

The epidemic form of the European, cosmopolitan, louse-borne relapsing fever has been liquidated in all parts of the USSR. The possibility exists, however, that this infection may be brought into the Turkmen SSR from countries bordering it, taking into consideration that occurrence of this disease is encountered there. Sporadic cases of the tick-borne relapsing fever were registered in several localities of the Turkmen SSR: the source of this infection was the nidi of spirochaetae found in the immediate area. These natural nidi of the tick-borne relapsing fever induce the disease among various wild animals, mostly rodents. The transmitters of the disease are local species of ticks. Although few deaths have been observed as a result of relapsing fever, and although the majority of patients recover after a few febrile attacks and nonfebrile periods, the severity of the course, the duration of the disease, and particularly the circumstance that it may reach epidemic proportions makes this infection very dangerous. Provisions must be made for rational preventive measures to forestall possible importation of relapsing fever into the area of canal construction. Discovery and isolation of patients having acute fever and diagnosis of their illness must be given special attention.

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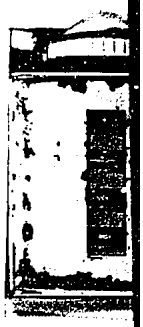


A network of deputy sanitation inspectors must be established in all populated sections of regions where construction work takes place; these deputies must be invited to make regular door-to-door visits, together with the medical workers. All febrile patients must be reported to health agencies.

During their house-to-house visits, medical workers must take the temperature of each individual suspected of having the disease. Each febrile individual must be isolated.

The next stage is early and precise diagnosis for relapsing fever of those febrile patients who are suspected of being infected. According to regulations of the epidemic control service, such patients must be isolated.

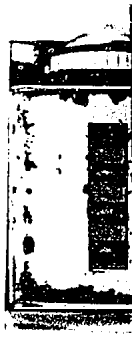
Microscopic examination of the blood of all febrile patients is obligatory. Presence of spirochaetae in the blood confirms the diagnosis for relapsing fever; absence of spirochaetae in the blood, during the febrile stage of the disease, signifies in most cases that relapsing fever is absent. It is desirable, however, to repeat such microscopic examinations of the blood. It is important also, when microscopic examinations of the blood are made for malaria or some other disease, to recognize the possibility of the presence of spirochaetae of relapsing fever. In cases of lice-borne European relapsing fever, spirochaetae are not found in the blood of the patient during apyrexia. If the patient's temperature was normal at the time the blood sample was taken, but there is still reason to suspect that he may have contracted relapsing fever, the blood must be examined again during the period of rise in temperature.

While a new construction project is in progress, an extremely cautious attitude must be adopted under the conditions existing there when even the slightest clinical symptoms of any infectious disease are observed. Among purely clinical symptoms of relapsing fever is the character of the temperature curve and alternation in attacks and apyrexia, which is typical of this disease; other symptoms are sudden onset of the disease; severe fever; great enlargement of the spleen; pain in the gastrocnemial muscles, creating great discomfort; and a rapid fall of temperature, accompanied by profuse perspiration.

The decisive factor in establishing a diagnosis for relapsing fever, however, is presence of spirochaetae in the blood of the patient; microscopic examination of the blood must be made to confirm the disease. The blood must be taken for examination at the time the patient has fever and at the time when clinical symptoms of the disease are evident. It is necessary also to take into consideration the epidemiological data. It is advisable to bear in mind that the disease may be brought in by the new arrivals at the site of the construction project. It is self-evident that all those individuals who have fever or show other symptoms of relapsing fever, even though these symptoms are established by clinical observations only, must be isolated and immediately hospitalized.

It is important to remember that people who have relapsing fever can transmit the disease not only during the attack but also during apyrexia or during the period of convalescence, if there are blood-sucking lice on their persons.

Patients with relapsing fever must remain in the hospital for not less than 15 days (preferably 20 days) after the last attack is over, provided there is no rise in temperature during that period. The days are counted starting with the day on which a drop in temperature is noted after the last rise.



Every patient who has recovered from relapsing fever and all people who have come in contact with him must be placed under medical observation for a period of one month.

It goes without saying that good hospital care must be provided for all patients with communicable diseases, including those with relapsing fever. All new construction projects must have hospitals equipped with a sufficient number of beds and qualitatively adequate other equipment, so that they may be in a position to handle emergency situations, including outbreaks of relapsing fever.

Treatment of relapsing-fever patients consists of administration of salvarsan preparations, penicillin, etc. Specific therapy in cases of relapsing fever is of great significance as far as prevention is concerned, because the source of infection (in the case of European relapsing fever) ceases to exist after successful treatment. In other words, the patient who has recovered from the disease is not only freed from the protracted and painful illness, but made incapable of infecting others. Strict sterile technique must be observed during the period of hospitalization; clothing of patients must undergo disinfection.

All persons who have come in contact with the patient must undergo a thorough checkup: they must be placed under medical observation for one month. While the patients are under observation, the temperature is checked, and all those whose temperature is above normal must be hospitalized.

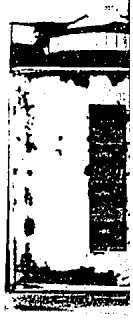
To prevent spread of infection, it is necessary to discover the disease early and have the diagnosis confirmed with the aid of microscopic laboratory examination. The patient must be hospitalized immediately and a thorough disinfection made of the nidus of infection and of the personal effects of all persons who have come in contact with the patient. Such persons must also be placed under medical observation. As a rule, the incidence of the disease can be restricted if the appearance of the first case of relapsing fever is discovered at an early date. It is self-evident that all transportation facilities used in bringing patients to the hospital must be disinfected, and sterile technique must be strictly observed by the hospitals themselves.

It is of primary importance that all newly arrived workers go through a disinfection process. Such disinfection must be conducted at a special receiving point which has special baths with disinfection chambers.

All persons who already live in the locality must go through systematic disinfection periodically under medical supervision; special public baths must be provided for that purpose. Homes, personal effects, dormitories, and particularly the bedding must be subjected to thorough cleaning and disinfection.

To prevent the spread of relapsing fever from one locality to another, public transportation systems must strictly observe general rules of sanitation; this applies particularly to the railroads, piers, and other places where large masses of people are temporarily concentrated.

Effective destruction of lice, maintenance of appropriate sanitary conditions at homes and public places, and continuous operation of baths in the area of new construction projects are important means for the prevention of relapsing fever. Educational work in hygiene, conducted by the active workers of the community among workers and their families, is the most important and essential effort toward prevention of communicable diseases, including relapsing fever. Among the new preparations for exterminating disease carriers at the nidus of infection are DDT preparations, hexachlorane, and others.



Although the number of seizures of tick-borne relapsing fever may reach up to 15 and higher, its clinical course is milder than that of lice-borne relapsing fever. Fatalities as a result of the tick-borne relapsing fever are rare, the duration of apyrexia is irregular, the spleen becomes enlarged only slightly and is not tender in the majority of cases, and the character of the temperature curve is somewhat different from that encountered in European relapsing fever.

Diagnosis of tick-borne relapsing fever is based on an examination of the blood smears and of a thick drop for the presence of spirochaetae; morphologically the spirochaetae do not differ from Obermeier's spirilla, but their number is fewer in the preparation. It is important to detect the spirochaetae not only during the periods of attack but also during the apyrexial periods. In making a differential diagnosis for tick-borne relapsing fever, as well as for lice-borne relapsing fever, it is important to exclude malaria. In diagnosing both lice-borne and tick-borne relapsing fever, it is necessary to take into account the following epidemiological data: presence of a bite, reactive symptoms at the spot of the bite, the locality the patient came from, etc.

The transmitter of tick-borne relapsing fever is a tick infected with spirochaetae from the blood of wild animals. The disease is transmitted to humans by the bite of this tick. Infected ticks remain carriers of spirochaetae for a period of 5-9 years. The epidemic character of the natural nidus of tick-borne relapsing fever depends mainly on the presence of an enzeootic nidus of spirochaetosis of wild animals in specific localities. The disease in humans, therefore, is of a zoonotic character.

The ticks are most active during the summer months; they shun daylight and take refuge in darkened places. They usually attack man at night.

To prevent incidence of tick-borne relapsing fever and to forestall its importation into the area where new construction projects are in progress, it is necessary, first of all, to destroy ticks in homes, barracks, and overnight lodging places for construction workers and for workers in the fields. Measures must also be taken to eliminate the possibility that the ticks may attack humans at night when the latter are asleep.

Destruction of ticks in a building of closed construction is carried out by means of gases which are toxic to insects and ticks, i.e., chloropicrin, hydrocyanic acid, sulfur dioxide, etc. Ticks may be destroyed in the fields by burning the grass.

Use of the thick-drop method of examining the blood of all patients suspected of having relapsing fever is obligatory. If spirochaetae are found in the blood of the patient, he must be hospitalized immediately, and ticks in his home must be eliminated by means of one of the above-stated methods. This must not be limited to the home of the patient alone, but ticks must be destroyed wherever they may be found within the area embraced by the construction project. It must be remembered that the existence of crevices and cracks in houses, close proximity of homes to barns where domestic animals are housed and to other farm buildings, and infestation of such buildings with rodents are factors conducive to infiltration by ticks.

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